Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

DEVAL L. PATRICK
Governor

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Secretary

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Date Stamped June 16, 2014

Mr. Jon Janshego
Lifoam Industries, LLC
2 Fifth Street
Peabody, MA 01960

RE: PEABODY
Transmittal No.: X257633
Application No.: NE-13-025
Class: *SM80-7*
FMF No.: 405638
AIR QUALITY PLAN APPROVAL

Dear Mr. Janshego:

The Massachusetts Department of Environmental Protection ("MassDEP"), Bureau of Waste Prevention, has reviewed your Non-major Comprehensive Plan Application ("Application") listed above. This application concerns the proposed installation and operation of up to five new molding machines, a new pre-expander, and the replacement of your existing air pollution control system at your existing facility located at 2 Fifth Street in Peabody, Massachusetts ("Facility"). The submitted application bears the seal and signature of Ms. Alicia Kabir, Massachusetts P.E. No. 46671.

This Application was submitted in accordance with 310 CMR 7.02 Plan Approval and Emission Limitations as contained in 310 CMR 7.00 "Air Pollution Control," regulations adopted by MassDEP pursuant to the authority granted by Massachusetts General Laws, Chapter 111, Section 142 A-J, Chapter 21C, Section 4 and 6, and Chapter 21E, Section 6. MassDEP's review of your Application has been limited to air pollution control regulation compliance and does not relieve you of the obligation to comply with any other regulatory requirements.

MassDEP has determined that the Application is administratively and technically complete and that the Application is in conformance with the Air Pollution Control regulations and current air pollution control engineering practice, and hereby grants this **Plan Approval** for said Application, as submitted, subject to the conditions listed below.

Please review the entire Plan Approval, as it stipulates the conditions with which the Facility owner/operator ("Permittee") must comply in order for the Facility to be operated in compliance with this Plan Approval.

1. DESCRIPTION OF FACILITY AND APPLICATION

Lifoam Industries, LLC (the "Permittee") manufactures expandable polystyrene (EPS) foam products for various customers such as those engaged in the fishing and food industries at the Facility. The manufacturing process uses an EPS resin or bead that contains pentane, a volatile organic compound (VOC). The pentane in the bead is used as a blowing agent to expand the polystyrene before and during product molding.

The existing facility consists of a pre-expander (EU-PREX1), aging and re-grind bags located in two aging rooms (EU-AGR1 and EU-AGR2), and 9 Hirsch EPS molding machines (EU-H1, EU-H2, EU-H3, EU-H4, EU-H5, EU-H6, EU-H9, EU-H10, EU-H11). EU-H10 will be replaced with a similar HS-1400 molding machine in the near future. The facility also includes 1 Cleaver-Brooks process steam boiler (EU-CBB), a Whitehorse Technologies steam generating thermal oxidizer (SGTO), and a Cleaver-Brooks space heating boiler (EU-SHB). The Permittee is proposing to install another pre-expander (EU-PREX2) and up to 5 new Hirsch molding machines (EU-7, EU-H8, EU-H12, EU-H13, EU-H14) in addition to replacing the existing SGTO with a new regenerative thermal oxidizer (PCD-RTO) as the pollution control device. (See Table 1 for a description of each piece of equipment and its designated emission unit number.)

In addition, the Permittee is proposing the following improvements to its existing VOC capture systems:

- installation of additional floor sweeps in the existing aging rooms;
- conversion of the two (2) existing aging rooms (EU-AGR1 and EU-AGR2) into permanent total enclosures (PTEs) with a recirculation system;
- installation of additional capture header inlet systems for the molding machine water drain system and pre-expander PTEs; and
- conversion/addition of PTEs around the two pre-expanders (EU-PREX1 and EU-PREX2).

These proposed improvements will enable the Permittee to capture an estimated 95 percent of the process VOC emissions from the two pre-expanders, the two aging rooms, and the collection of up to fourteen molding machines. The recirculation systems for the aging rooms will be utilized when PCD-RTO is not in operation in order to evenly distribute pentane throughout EU-AGR1 and EU-AGR2. Recirculation and total enclosures will continue through the purge and PCD-RTO warm-up cycles until PCD-RTO is at normal operating condition and ready to control VOCs. PCD-RTO will be shut down over periods such as weekends when no EPS foam manufacturing operations are taking place (e.g. molding machines and pre-expanders are not operating). Upon completion of the PCD-RTO Project, the Permittee is proposing to convert the existing SGTO to a supplemental process steam boiler for the Facility, and is also seeking an increase in its allowable production capacity from 4,432,000 pounds of annual EPS bead throughput to 5,130,000

pounds per year of EPS bead throughput, with a maximum concentration not to exceed 6.5 percent (%) pentane by weight.
The following paragraphs describe current and proposed future operations at the Facility.

Steam will be provided to the two pre-expanders by the modified 18 million British thermal units per hour (MMBtu/hr) Whitehorse Technologies supplemental boiler (EU-BSUP) and the existing 12.5 MMBtu/hr Cleaver-Brooks boiler (EU-CBB). These boilers will utilize natural gas as their sole fuel source. EU-SHB is an existing 7.5 MMBtu/hr space heating boiler which utilizes No. 2 fuel oil (presently with a maximum sulfur content of 0.3 percent by weight) as the only fuel of use.

The manufacturing process begins with receiving the resin, typically in 2,200-pound totes and manually transferring the beads to a holding tank or "bead bin". The beads are then pneumatically transferred to one of two pre-expanders where they are heated with direct contact steam and expanded to 30 to 40 times their original size. The expanded beads are then pneumatically transferred to one of up to twenty-five (25) storage bags located within two aging rooms (EU-AGR1 and EU-AGR2) where they are aged for a period of 6 to 48 hours ("pre-puff stage"). Beads are then pneumatically transferred to one of up to fourteen (14) molding machines where they are molded into specified shapes by pressure and direct steam heating. The finished product is stacked and then transferred to one or more storage areas to await delivery to the customer(s). Storage time is typically about 30 days.

As the EPS beads are transferred from EU-PREX1 and EU-PREX2 to the aging bags in EU-AGR1 and EU-AGR2, they cool down to approximately ambient temperature. The aging bags are currently designed to allow air to enter the bead cells and equilibrate between the top and a small vent on the bottom so that air can pass over the beads, but may be replaced with open mesh aging bags to allow for free flow of pentane out of the bags into the PTEs. VOC released from the aging bags were determined to account for approximately 20% of the total incoming pentane during a compliance test performed from September 16 – 19, 1997. Due to the fact that pentane is approximately 2.5 times heavier than air, pentane released from the EPS beads during the bead aging process sinks to the bottom of the aging rooms/bags and is collected by centrifugal blowers which cascade and pull process unit VOC emissions and PTE air to the existing SGTO, or once the Project is completed, to the new PCD-RTO (a new Ship and Shore Model No. SSE-98X-7.5K RTO, or equivalent RTO).

During periods such as weekends when the SGTO or PCD-RTO and EPS bead process are not in operation, pentane accumulates in EU-AGR1 and EU-AGR2 until bead processing resumes. Each aging room is equipped with Lower Explosive Level (LEL) monitors with an emergency set point of up to 25 percent of the LEL or 3,750 parts per million (ppm) pentane, and two TRI Model CV9-36 axial fan systems for emergency ventilation.

After aging in the bead storage bags, the beads are pneumatically transferred to enclosed hoppers, which are attached to the molding machines. The beads are then transferred into the mold where steam is added to form the molded products. The molding machines have

been modified so that they exhaust to an enclosed vacuum capture system during molding. The steam/air mixture is drawn off the molds, and passed through an air/water separator. The steam condenses to water, leaving the press through a drain line and is pumped into the cooling water system. Water from the cooling water system is pumped back to the molding machines where it is used for cooling the parts after they are molded as well as for cooling hydraulics and equipment.

During the molding process, the EPS material is enclosed within the press. However, when the EPS product drops from the mold, there is a potential for escape of some fugitive VOC emissions. The Permittee will upgrade this VOC capture system to an expected VOC capture efficiency from the pentane capture system of 95% or greater. The collected VOC emissions are ducted to the current pollution control device (SGTO) and will be ducted to the new to PCD-RTO when this new control device is installed and operational.

The molded products are then stored prior to shipment to the customer. The majority of the VOC emissions released from the stored product occur during the first 24 hours of storage. Assuming that 100% of the remaining pentane emissions will be emitted during storage, this amount would equate to up to 28.2 tons per year (TPY) of VOC emissions based on the maximum consumption of 5,130,000 pounds per year of raw EPS beads with a maximum pentane content of 6.5 percent by weight. In reality this is an overestimate, because a portion of this potential VOC remains in the shipped product.

A new centrifugal blower with a rated capacity of at least 7,500 scfm will collect VOC laden gases from the collection header which will maintain a negative pressure in the emission unit capture headers serving each of the following emission units: EU-PREX1 and EU-PREX2, EU-AGR1 and EU-AGR2, and EU-H1 through EU-H14. PCD- RTO will have a rated air flow capacity of at least 7,500 scfm. PCD-RTO will be equipped with a new burner which will burn natural gas as the only fuel of use at a designed energy input capacity of at least 2.4 MMBtu/hr.

Under normal operating conditions, the set point of PCD-RTO operating temperature will be 1,430 degrees Fahrenheit (^{o}F), in order to maintain the minimum operating temperature of 1,400 ^{o}F, or such other temperature as may be established pursuant to satisfactory compliance testing results as determined by MassDEP. The effective chamber volume of each combustion chamber will be at least 234 cubic feet which is designed to provide a minimum retention time of 0.5 second at the minimum operating temperature of 1,400 ^{o}F. Thermocouples will be located within each of the two combustion chambers. A temperature chart recorder and a data logger will continuously monitor and record the actual operating temperature of PCD-RTO as one (1) minute averages. Process steam demand will be provided by EU-CBB and EU-BSUP.

The new RTO will be specified and guaranteed by the manufacturer to destroy 99% of maximum potential inlet VOC under design conditions which does not include a “puff” chamber. PCD-RTO’s VOC destruction efficiency will be 99 percent or a maximum outlet VOC emission rate of 0.45 pounds per hour, whichever is less stringent. This will be

demonstrated through future compliance testing as specified in Table No. 3, Paragraph No. 8.

2. EMISSION UNIT (EU) IDENTIFICATION

Each Emission Unit (EU) identified in Table 1 is subject to and regulated by this Plan Approval:

Table 1

EU#	Description	Maximum Design Capacity	Pollution Control Device (PCD)
EU-PREX1	Hirsch Model No. PREEX6000 existing pre-expander	379 lbs/hr	Currently SGTO, but will be replaced with a new Ship and Shore Model No. SSE-98X-7.5K RTO, or equivalent
EU-PREX2	Hirsch Model No. PREEX6000XXL new pre-expander, or equivalent	743 lbs/hr	
EU-AGR1	Existing aging room with aging bags and re-grind bags	395 lbs/hr	
EU-AGR2	Existing aging room with aging bags	342 lbs/hr	
EU-H1 EU-H2 EU-H3 EU-H4 EU-H5 EU-H6 EU-H11	7 existing Hirsch Model No. HS1400 molding machines	29 lbs/hr	
EU-H9	1 existing Hirsch Model No. HS1200 molding machine	15 lbs/hr	
EU-H10	1 existing Hirsch Model No. HS1500 molding machine (will be replaced with a new HS1400 molding machine)	29 lbs/hr	
EU-H7 EU-H8 EU-H12 EU-H13 EU-H14	5 new Hirsch Model No. HS1400 molding machines, or equivalent	29 lbs/hr	
EU-CBB	Existing Cleaver-Brooks Model No. CB200-300 boiler	12.5 MMBtu/hr max	None
EU-BSUP	Modified Whitehorse Technologies Model No. Boss 10000-450 boiler	18 MMBtu/hr max	
EU-SHB	Existing Clever-Brooks Model No. MTF-750 space heating boiler	7.5 MMBtu/hr max	

Table 1 Key:
RTO = regenerative thermal oxidizer
EU# = Emission Unit Number
PCD = Pollution Control Device
lbs/hr = pounds per hour

max = maximum
MMBtu/hr = million British thermal units per hour

3. APPLICABLE REQUIREMENTS

A. OPERATIONAL, PRODUCTION and EMISSION LIMITS

The Permittee is subject to, and shall not exceed the Operational, Production, and Emission Limits as contained in Table 2 below:

Table 2

EU#	Operational / Production Limit	Air Contaminant	Emission Limit
EU-PREX1 EU-PREX2 EU-AGR1 EU-AGR2 EU-H1 EU-H2 EU-H3 EU-H4 EU-H5 EU-H6 EU-H9 EU-H10 EU-H11 EU-H7 EU-H8 EU-H12 EU-H13 EU-H14	Maximum pentane content of EPS beads shall not exceed 6.5 percent by weight. Maximum throughput of 1,068,750 pounds of pentane beads per month and 5,130,000 pounds of pentane beads over any consecutive twelve month rolling period shall not be exceeded.	VOC	Air handling systems shall provide a capture efficiency ranging from 95% - 100% PCD-RTO shall provide a minimum VOC destruction efficiency of 99 percent by weight or a maximum outlet VOC emission rate of 0.45 per hour, whichever is less stringent
EU-CBB	Natural gas is sole fuel of use.	NO_x	0.16 TPM; 1.92 TPY
		CO	0.37 TPM; 4.38 TPY
		VOC	0.14 TPM; 1.64 TPY
		$PM/PM_{10}/PM_{2.5}$	0.05 TPM; 0.55 TPY
		CO_2	532 TPM; 5839 TPY
		Opacity	<5%, except 5 to <10% for ≤2 minutes during any one hour
EU-BSUP	Natural gas is sole fuel of use.	NO_x	0.23 TPM; 2.76 TPY
		CO	0.53 TPM; 6.31 TPY
		VOC	0.20 TPM; 2.37 TPY
		$PM/PM_{10}/PM_{2.5}$	0.07 TPM; 0.79 TPY
		CO_2	701 TPM; 8407 TPY

Table 2			
EU#	**Operational / Production Limit**	**Air Contaminant**	**Emission Limit**
		Opacity	<5%, except 5 to <10% for ≤2 minutes during any one hour
EU-SHB	No.2 fuel oil ≤0.3% S by wt. ≤0.05% S by wt. July 1, 2014 through June 30, 2018 ≤0.0015% S by wt. on and after July 1, 2018	NO_x	0.21 TPM; 2.46 TPY
		CO	0.11 TPM; 1.31 TPY
		VOC	0.04 TPM; 0.49 TPY
		$PM/PM_{10}/PM_{2.5}$	0.03 TPM; 0.33 TPY
		CO_2	203 TPM; 2434 TPY
		SO_2	0.5 TPM; 5.0 TPY
		Opacity	<5%, except 5 to <10% for ≤2 minutes during any one hour
Facility-wide	NA	NO_x	0.7 TPM; 8.1 TPY
		CO	1.2 TPM; 14.1 TPY
		VOC	10.3 TPM; 49.3 TPY
		$PM/PM_{10}/PM_{2.5}$	0.2 TPM; 1.9 TPY
		CO_2	1624 TPM; 19,482 TPY
		SO_2	0.4 TPM; 5.1 TPY
		Total HAPs	0.4 TPM; 2.0 TPY

Table 2 Key:
NA = Not Applicable
EU# = Emission Unit Number
NO_x = Nitrogen Oxides
CO = Carbon Monoxide
SO_2 = Sulfur Dioxide
PM = Total Particulate Matter
PM_{10} = Particulate Matter less than or equal to 10 microns in diameter
$PM_{2.5}$ = Particulate Matter less than or equal to 2.5 microns in diameter
VOC = Volatile Organic Compounds
Total HAPs = total Hazardous Air Pollutants.
CO_2 = Carbon Dioxide
Lbs/hr = pounds per hour
TPM = tons per month
TPY = tons per consecutive12-month period
MMBtu/hr = million British thermal units per hour
S = Sulfur

B. COMPLIANCE DEMONSTRATION

The Permittee is subject to, and shall comply with, the monitoring, testing, record keeping, and reporting requirements as contained in Tables 3, 4, and 5 below:

Table 3	
EU#/PCD	**Monitoring and Testing Requirements**
EU-PREX1 EU-PREX2 EU-AGR1 EU-AGR2 EU-H1 EU-H2 EU-H3 EU-H4 EU-H5 EU-H6 EU-H9 EU-H10 EU-H11 EU-H7 EU-H8 EU-H12 EU-H13 EU-H14	1. Conduct compliance testing for VOC on these EUs within one hundred twenty (120) days of the commencement of continuous operation of said EUs. All compliance testing shall be conducted in accordance with the test methods and procedures set forth in 40 CFR 60, Appendix A. All compliance testing shall be witnessed by MassDEP personnel at a mutually agreeable date and time.
	2. Monitor the weekly, calendar month, and twelve month rolling consumption of EPS beads processed by the facility in these EUs to document compliance status with the limitations contained in Table 2 above. The average monthly pentane content of the EPS beads consumed and the total monthly EPS bead consumption shall be used to determine the actual monthly emission rates.
PCD-RTO	3. Within thirty (30) days of the continuous operation of the PCD-RTO, Permittee shall conduct a balancing of the air handling system and measure the air flow within the air handling system to ensure that all of the VOC-laden process air is being vented to the PCD-RTO. Permittee shall allow MassDEP personnel to witness the documentation of the capture effectiveness of the air handling system.
	4. For compliance testing purposes, the PCD-RTO and its associated pentane capture system shall be constructed so as to accommodate the emissions testing requirements as stipulated in 40 CFR Part 60, Appendix A. The two (2) inlet and two (2) outlet sampling ports should ideally be located at two duct diameters upstream and eight duct diameters downstream of any flow disturbance. The corresponding sampling ports should be 90 degrees apart from each other.
	5. Monitor operations so that a minimum PCD-RTO combustion chamber temperature of 1,400 degrees Fahrenheit, or such other temperature as may be established pursuant to satisfactory compliance testing results as determined by MassDEP, is achieved prior to ducting of VOC laden air to PCD-RTO, or introduction of pentane beads to any pre-expander or molding machine. This minimum temperature shall be maintained at all times (in one-minute averages) while any associated emission unit(s) is/(are) producing VOC laden air that can't be recirculated. Temperature monitoring shall include date and time and any necessary description of operational changes that may occur.
	6. Monitor operations so that in the event of PCD-RTO malfunction, an interlock system shall prevent the uncontrolled operation of EU-PREX1, EU-PREX2, and EU-H1 through EU-H14. Permittee shall cease feeding EPS beads to these emission units until PCD-RTO is operating properly.

Table 3	
EU#/PCD	**Monitoring and Testing Requirements**
PCD-RTO	7. Compliance testing shall be completed on PCD-RTO and the associated PTEs every three (3) years, or as determined by MassDEP, with the first compliance test commencing within one hundred days (120 days) of commencement of continuous operation of PCD-RTO. The compliance testing of PCD-RTO must demonstrate, at minimum, that: a) each applicable enclosure complies with the United States Environmental Protection Agency's (USEPA) Method 204 which outlines criteria for Permanent Total Enclosures; b) the actual pentane capture system complies with the required overall, minimum VOC capture efficiency of 95% (by mass balance justification); and c) the VOC destruction efficiency of PCD-RTO is a minimum of 99.0 percent by weight or a maximum outlet VOC emission rate of 0.45 pound per hour or less, whichever is less stringent. The compliance testing procedures must follow USEPA and MassDEP methods and guidelines.
SGTO PCD-RTO	8. Monitor maintenance activities associated with SGTO and PCD-RTO.
EU-CBB EU-BSUP EU-SHB	9. Monitor the monthly and twelve month rolling consumption of natural gas and No. 2 fuel oil to document compliance status with the emission limitations contained in Table 2 above.
Facility-wide	10. Monitor to ensure that all VOC or HAPs-containing materials such as coatings, solvents, and cleanup solutions, shall be transported and stored in tightly covered containers.
	11. Monitor that all cleaning rags used in conjunction with the VOC containing cleaning solutions shall be placed in tightly covered containers when not in use, and shall be collected for proper recycling or disposal.
	12. Monitor Facility operations so that deviations from Plan Approval requirements can be reported to MassDEP.
	13. Monitor raw material usage each month in order to determine the actual emissions of VOC and HAPs for the month as well as for the prior 11 months for the entire Facility.
	14. Monitor Facility operations such that emissions may be calculated as required for compliance with 310 CMR 7.12.

Table 3 Key:
EU# = Emission Unit Number
PCD-RTO = RTO pollution control device
VOC = volatile organic compounds
PTE = Permanent Total Enclosure
HAPs = hazardous air pollutants

Table 4	
EU#	**Record Keeping Requirements**
EU-PREX1 EU-PREX2 EU-AGR1 EU-AGR2 EU-H1 EU-H2 EU-H3 EU-H4 EU-H5 EU-H6 EU-H9 EU-H10 EU-H11 EU-H7 EU-H8 EU-H12 EU-H13 EU-H14	1. Quantify all periods of excess emissions, even if attributable to an emergency/malfunction, startup/shutdown or equipment cleaning in the determination of annual emissions and compliance with the emission limits as stated in Table 2.
	2. Maintain a record keeping system for these EUs to be established on-site. All such records shall be maintained up-to-date such that year-to-date information is readily available for MassDEP examination upon request and shall be kept on site for a minimum of five (5) years. Record keeping shall, at a minimum, include: a) Compliance records sufficient to document the actual monthly and twelve month rolling emission rates of VOC from these EUs, so as to determine compliance status with the emission limitations contained in Table 2 above. Such records shall include, but are not limited to, the daily, monthly, and twelve month rolling emission rates, emissions test results, monitoring equipment data and reports, and hours of operation. b) Maintenance: A record of routine maintenance activities performed on these EUs and their monitoring equipment including, at a minimum, the type or a description of the maintenance performed and the date and time the work was completed. c) Malfunctions: A record of all malfunctions of these EUs and their monitoring equipment including, at a minimum: the date and time the malfunction occurred; a description of the malfunction and the corrective action taken; the date and time corrective actions were initiated; and the date and time corrective actions were completed and the equipment was returned to compliance.
	3. Maintain records on-site of the weekly, calendar month, and twelve month rolling EPS bead consumption to document compliance status with the emission limitations contained in Table 2 above.
SGTO PCD-RTO	4. Maintain records documenting actual SGTO and PCD-RTO combustion chamber temperature in degrees Fahrenheit. Temperature monitoring shall include the date and any necessary description of operational changes that may occur. The combustion chamber temperature of the SGTO and PCD-RTO shall be recorded with temperature monitoring and recording equipment using a digital readout and stored on a computerized hard drive, flash card, disc, or other media. Permittee shall have on-site a temperature data back up to the flash card, disc, or other backup data capture media. These records shall be maintained on-site, and shall be made available to MassDEP personnel upon request.
	5. Maintain records of all malfunctions as defined in the SOMP as well as historical activation of the interlock system associated with PCD-RTO, including corrective actions taken and steps to prevent similar malfunctions from reoccurring in the future.
	6. Maintain records of all emission testing for SGTO and PCD-RTO.
	7. Maintain a maintenance log for SGTO and PCD-RTO which shall record all routine and emergency maintenance work and repairs performed on it, as specified in the SOMP. Said log shall indicate all malfunctions and down time.
PCD-RTO	8. Maintain all records of PCD-RTO operation/malfunction resulting in any associated uncontrolled excess VOC emissions.
EU-CBB EU-BSUP EU-SHB	9. Maintain records of monthly and twelve month rolling natural gas and No. 2 fuel oil consumption rates and the corresponding actual emissions from these emission units.

Table 4	
EU#	**Record Keeping Requirements**
Facility-wide	10. Maintain adequate records on-site to demonstrate compliance status with all operational, production, and emission limits contained in Table 2 above. Records shall also include the actual emissions of air contaminant(s) emitted for each calendar month and for each consecutive twelve month period (current month plus prior eleven months). These records shall be compiled no later than the 15th day following each month. An electronic version of the MassDEP approved record keeping form, in Microsoft Excel format, can be downloaded at http://www.mass.gov/eea/agencies/massdep/air/approvals/limited-emissions-record-keeping-and-reporting.html.
	11. Maintain records of monitoring and testing as required by Table 3.
	12. Maintain a copy of this Plan Approval, underlying Application and the most up-to-date SOMP for the EUs and PCDs approved herein on-site.
	13. Maintain records of all facility operations so that deviations from Plan Approval requirements can be reported to the MassDEP. Maintain a record of all deviations from Plan Approval conditions.
	14. Maintain records of facility operations such that information may be reported as required for compliance with 310 CMR 7.12.
	15. Maintain records required by this Plan Approval on-site for a minimum of five (5) years.
	16. Make records required by this Plan Approval available to MassDEP and USEPA personnel upon request.

Table 4 Key:
EU# = Emission Unit Number
PCDs = Pollution Control Devices
PCD-RTO = RTO pollution control device
VOC = volatile organic compounds
SOMP = Standard Operating and Maintenance Procedure
USEPA = United States Environmental Protection Agency

Table 5	
EU#	**Reporting Requirements**
PCD-RTO	1. Submit a compliance test protocol on the required initial compliance test to MassDEP's Northeast Regional Office (NERO) for review and approval at least thirty (30) days prior to the scheduled commencement of said testing. Test protocols for any subsequent required emissions testing shall be submitted for review and approval at least forty-five (45) days prior to the scheduled commencement of said testing.
	2. Submit the initial emission test results report to NERO for review within forty-five (45) days of the completion of any required compliance stack testing.
	3. In the event of any PCD-RTO malfunction which results in any uncontrolled excess VOC emissions, notify MassDEP by telephone within one (1) business day and subsequently in writing within seven (7) days of said occurrence. This written notification shall describe the reason(s) for and the extent of down time of the equipment and all steps that have been or will be taken to prevent similar malfunctions from occurring in the future.
EU-PREX2 EU-H7 EU-H8 EU-H12 EU-H13 EU-H14	4. Notify NERO, in writing, within fourteen (14) days of commencement of operation of these EUs. These EUs shall not be operated without control by PCD-RTO.
Facility-wide	5. Submit the Final Standard Operating and Maintenance Procedures (SOMP) for these EUs and PCD-RTO to NERO within sixty (60) days of completion of their required initial compliance testing. Any subsequent changes to the SOMP shall be submitted within fifteen (15) days of said revision(s).
	6. Notify MassDEP's NERO by telephone, fax, or email as soon as possible, but in any case no later than one business day, and subsequently in writing within three days, after the occurrence of any upsets or malfunctions to these EUs and related equipment which results in an excess emission to the air and/or a condition of air pollution.
	7. All notifications and reporting required and not specified by this Approval shall be made to: Department of Environmental Protection/Bureau of Waste Prevention 205B Lowell Street Wilmington, Massachusetts 01887 ATTN: BWP Permit Chief Phone: 978-694-3200 Fax: 978-694-3499
	8. A semi-annual report of the VOC and HAPs emissions data for the period of January 1 through June 30 inclusive and for the period of July 1 through December 31 inclusive must be submitted to the MassDEP, attention Permit Chief for the Bureau of Waste Prevention, by no later than the following July 30th and January 30th, respectively.

Table 5	
EU#	**Reporting Requirements**
Facility-wide	9. Submit, in writing, an Exceedance Report to MassDEP should the facility exceed any limitation/restriction established within this Final Approval. Said Exceedance Report shall be submitted to this Office within three (3) days of determination of the exceedance of the limitation. The Exceedance Report shall include identification, duration, reason for the exceedance, and remedial action plan to prevent future exceedances.
	10. Accurately report the Facility's air emissions on Source Registration/Emission Statement Forms as required by Regulation 310 CMR 7.12.
	11. Submit to MassDEP all information required by this Plan Approval over the signature of a "Responsible Official" as defined in 310 CMR 7.00 and shall include the Certification statement as provided in 310 CMR 7.01(2)(c).
	12. Notify MassDEP's NERO, BWP Permit Chief by telephone (978-694-3200), email, nero.air@state.ma.us, or fax (978-694-3499), as soon as possible, but no later than three (3) business days after discovery of an exceedance(s) of Table 2 requirements. A written report shall be submitted to Permit Chief at MassDEP within three (3) business days thereafter and shall include: identification of exceedance(s), duration of exceedance(s), reason for the exceedance(s), corrective actions taken, and action plan to prevent future exceedance(s).

Table 5 Key:
EU# = Emission Unit Number

4. SPECIAL TERMS AND CONDITIONS

The Permittee is subject to, and shall comply with, the following special terms and conditions:

A. The Permittee shall comply with the Special Terms and Conditions as contained in Table 6 below:

Table 6	
EU#/PCD	**Special Terms and Conditions**
EU-PREX1 EU-PREX2 EU-AGR1 EU-AGR2	1. Establish and maintain documentation and adhere to the criteria for VOC capture efficiency - U.S. EPA Method 204 for permanent total enclosures (PTEs) for these emission units. The criteria for a PTE are the following: a) All access doors and windows are closed during normal operation. b) The interior of the PTE is under negative pressure to the outside environment. c) The average velocity through the natural draft openings (NDOs) must be greater than 200 feet per minute. d) Sources of VOC in the PTE must be at least four (4) equivalent diameters from each NDO. e) The total area of all NDOs must be less than five (5) percent of the total area of the enclosure. The above procedures shall be incorporated into Permittee's Standard Operating and Maintenance Procedure (SOMP) for these emission units.
	2. Establish and maintain a copy of the full PTE site-specific test plan on-site. The test plan should contain the following: a) A description of how Permittee will demonstrate that, within the PTE, the VOC ~~and HAPs~~ concentrations shall be maintained and not rise or exceed safe Occupational Safety & Health Administration (OSHA) levels. Method 204 lists the requirements for such levels; b) A full explanation of any possible natural draft openings (NDOs) and how they might affect the overall certification of the PTE; c) A description of how Permittee will monitor to verify that the PTE will meet either inward flow to the PTE or negative pressure in the PTE; and d) A calculation of the PTE area ratios as required in Method 204. This plan shall be made available to MassDEP personnel upon request.
EU-H1 EU-H2 EU-H3 EU-H4 EU-H5 EU-H6 EU-H9 EU-H10 EU-H11 EU-H7 EU-H8 EU-H12 EU-H13 EU-H14	3. Maintain documentation on the actual VOC capture efficiency of the pentane capture system based on the most recently performed compliance test.

Table 6	
EU#/PCD	**Special Terms and Conditions**
EU-PREX1 EU-PREX2 EU-AGR1 EU-AGR2 EU-H1 EU-H2 EU-H3 EU-H4 EU-H5 EU-H6 EU-H9 EU-H10 EU-H11 EU-H7 EU-H8 EU-H12 EU-H13 EU-H14	4. Operate the subject EUs consistent with the Final SOMP and the conditions/parameters established from each compliance test.
PCD-RTO	5. PCD- RTO shall provide a minimum control efficiency of 99.0 weight percent for VOC or a maximum outlet VOC emission rate of less than 0.45 pound per hour, whichever is less stringent. All associated permanent total enclosures (PTEs) shall provide 100 percent capture efficiency based on conformance to Method 204.
	6. There are five (5) upset conditions for which the associated emission units being controlled by PCD-RTO shall immediately be shut down. These conditions are as follows: a) thermal oxidizer fan failure; b) thermal oxidizer combustion chamber exceeding 1950 ^{o}F or manufacturer's specification; c) hydraulic system (i.e. pumps, etc.) pressure loss; d) loss of burner gas pressure, gas service interruption, or flame out; and/or e) general system or PCD-RTO power failure.
	7. A copy of the Standard Operating and Maintenance Procedure (SOMP) for PCD-RTO shall be located at or nearby the system's control panel.
	8. The start-up specifications and maintenance procedures for PCD-RTO shall be established and incorporated into its SOMP. The SOMP shall address the spare parts inventory and back-up equipment systems for the PCD-RTO to prevent or reduce any downtime PCD-RTO. In addition, a copy of any subsequent revisions made to the SOMP must be submitted to this office within fifteen (15) days of the documented modification(s).
	9. An electronic interlock system shall prevent or interrupt the introduction of EPS bead to any emission unit requiring control by PCD-RTO until the PCD-RTO achieves and maintains the minimum operating temperature of 1,400^{o}F (or such other temperature as may be established pursuant to satisfactory compliance testing results as determined by MassDEP). In the event the interlock is activated to prevent processing, all bead processing emission units will be allowed to complete any cycle already in progress prior to interruption from further EPS processing.

Table 6	
EU#/PCD	**Special Terms and Conditions**
SGTO	10. The Permittee shall ensure that the SGTO shall continue to comply with all of the existing requirements contained in Conditional Approval, MBR-06-IND-022, until PCD-RTO has been installed and is in operation. Once PCD-RTO is in continuous operation, SGTO can be modified to the proposed supplemental steam boiler that the Permittee is requesting in this Approval.
Facility-wide	11. This Plan Approval, NE-13-025, supersedes the Conditional Approval, MBR-06-IND-022, issued to the Permittee on November 1, 2006, in its entirety, with the exception that all plan application materials submitted as part of Approval MBR-06-IND-022 become part of Plan Approval No. NE-13-025.
	12. This Facility may be subject to the Federal New Source Performance Standards (NSPS) for Small Industrial-Commercial-Institutional Steam Generating Units (40 CFR Part 60 Subpart Dc). Since MassDEP has not accepted delegation for Subpart Dc, you are advised to consult with the EPA for additional information. There may be additional notification, record keeping and reporting requirements. Their address is US EPA Region 1, 5 Post Office Square – Suite 100, Boston, MA 02109-3912.
	13. This Facility may be subject to the Federal National Emissions Standards for Hazardous Air Pollutants (NESHAPs) for Area Sources: Industrial, Commercial, and Institutional Boilers under 40 CFR Part 63 Subpart JJJJJJ. This regulation includes stationary RICE units at an area source. Since MassDEP has not accepted delegation for Subpart JJJJJJ, you are advised to consult with the United States Environmental Protection Agency (USEPA) for additional information. There may be additional notification, record keeping and reporting requirements. Their address is US EPA Region 1, 5 Post Office Square – Suite 100, Boston, MA 02109-3912.

Table 6 Key:
EU# = Emission Unit Number

B. The Permittee shall install and use an exhaust stack, as required in Table 7, on each of the Emission Units that is consistent with good air pollution control engineering practice and that discharges so as to not cause or contribute to a condition of air pollution. Each exhaust stack shall be configured to discharge the gases vertically and shall not be equipped with any part or device that restricts the vertical exhaust flow of the emitted gases, including but not limited to rain protection devices known as “shanty caps” and “egg beaters.” The Permittee shall install and utilize exhaust stacks with the following parameters, as contained in Table 7 below, for the Emission Units that are regulated by this Plan Approval:

Table 7				
EU#/PCD	**Stack Height Above Ground (feet)**	**Stack Inside Exit Dimensions (feet)**	**Minimum Stack Gas Exit Velocity (feet per second)**	**Stack Gas Exit Temperature (^{o}F)**
EU-CBB	27	1.67	20	300
EU-BSUP	25	2.33	14	325
EU-SHB	26	0.67	18	300
RTO	30	2.33	6	325

Table 7 Key:
EU# = Emission Unit Number
^{o}F = Degree Fahrenheit
PCD = Pollution Control Device
RTO = regenerative thermal oxidizer

5. GENERAL CONDITIONS

The Permittee is subject to, and shall comply with, the following general conditions:

A. Pursuant to 310 CMR 7.01, 7.02, 7.09 and 7.10, should any nuisance condition(s), including but not limited to smoke, dust, odor or noise, occur as the result of the operation of the Facility, then the Permittee shall immediately take appropriate steps including shutdown, if necessary, to abate said nuisance condition(s).

B. If asbestos remediation/removal will occur as a result of the approved construction, reconstruction, or alteration of this Facility, the Permittee shall ensure that all removal/remediation of asbestos shall be done in accordance with 310 CMR 7.15 in its entirety and 310 CMR 4.00.

C. If construction or demolition of an industrial, commercial or institutional building will occur as a result of the approved construction, reconstruction, or alteration of this Facility, the Permittee shall ensure that said construction or demolition shall be done in accordance with 310 CMR 7.09(2) and 310 CMR 4.00.

D. Pursuant to 310 CMR 7.01(2)(b) and 7.02(7)(b), the Permittee shall allow MassDEP and / or USEPA personnel access to the Facility, buildings, and all pertinent records for the purpose of making inspections and surveys, collecting samples, obtaining data, and reviewing records.

E. This Plan Approval does not negate the responsibility of the Permittee to comply with any other applicable Federal, State, or local regulations now or in the future.

F. Should there be any differences between the Application and this Plan Approval, the Plan Approval shall govern.

G. Pursuant to 310 CMR 7.02(3)(k), MassDEP may revoke this Plan Approval if the construction work is not commenced within two years from the date of issuance of this Plan Approval, or if the construction work is suspended for one year or more.

H. This Plan Approval may be suspended, modified, or revoked by MassDEP if MassDEP determines that any condition or part of this Plan Approval is being violated.

I. This Plan Approval may be modified or amended when in the opinion of MassDEP such is necessary or appropriate to clarify the Plan Approval conditions or after consideration of a written request by the Permittee to amend the Plan Approval conditions.

J. Pursuant to 310 CMR 7.01(3) and 7.02(3)(f), the Permittee shall comply with all conditions contained in this Plan Approval. Should there be any differences between provisions contained in the General Conditions and provisions contained elsewhere in the Plan Approval, the latter shall govern.

6. MASSACHUSETTS ENVIRONMENTAL POLICY ACT

MassDEP has determined that the filing of an Environmental Notification Form (ENF) with the Secretary of Energy & Environmental Affairs, for air quality control purposes, was not required prior to this action by MassDEP. Notwithstanding this determination, the Massachusetts Environmental Policy Act (MEPA) and 301 CMR 11.00, Section 11.04, provide certain "Fail-Safe Provisions," which allow the Secretary to require the filing of an ENF and/or an Environmental Impact Report (EIR) at a later time.

7. APPEAL PROCESS

This Plan Approval is an action of MassDEP. If you are aggrieved by this action, you may request an adjudicatory hearing. A request for a hearing must be made in writing and postmarked within twenty-one (21) days of the date of issuance of this Plan Approval.

Under 310 CMR 1.01(6)(b), the request must state clearly and concisely the facts, which are the grounds for the request, and the relief sought. Additionally, the request must state why the Plan Approval is not consistent with applicable laws and regulations.

The hearing request along with a valid check payable to the Commonwealth of Massachusetts in the amount of one hundred dollars ($100.00) must be mailed to:

Commonwealth of Massachusetts
Department of Environmental Protection
P.O. Box 4062
Boston, MA 02211

This request will be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver as described below. The filing fee is not required if the appellant is a city or town (or municipal agency), county, or district of the Commonwealth of Massachusetts, or a municipal housing authority.
MassDEP may waive the adjudicatory hearing-filing fee for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file, together with the hearing request as provided above, an affidavit setting forth the facts believed to support the claim of undue financial hardship.

Enclosed is a stamped approved copy of the application submittal.

Should you have any questions concerning this Plan Approval, please contact Mr. Mun Wong by telephone at 978-694-3286, or in writing at the letterhead address.

Sincerely,

This final document copy is being provided to you electronically by the Department of Environmental Protection. A signed copy of this document is on file at the DEP office listed on the letterhead.

Mun S. Wong
Environmental Engineer IV

This final document copy is being provided to you electronically by the Department of Environmental Protection. A signed copy of this document is on file at the DEP office listed on the letterhead.

James E. Belsky
Permit Chief
Bureau of Waste Prevention
Northeast Regional Office

Enclosure
cc: Board of Health, 24 Lowell Street, Peabody, MA 01960
Fire Headquarters, 41 Lowell Street, Peabody, MA 01960
DEP, Boston, Yi Tian (e-copy)
DEP, NERO, Attn: M. Wong, M. Altobelli, M. Persky, M. Bolis
Environmental Resources Management, 15 Park Row West, Suite 104, Providence, RI 02903
ATTN: Mr. Michael Mulé